PROJECT DESCRIPTION

NATURE AND PURPOSE OF PROJECT

On March 29, 2001, East Altamont Energy Center, LLC, a wholly owned subsidiary of Calpine Corporation, filed an Application for Certification (AFC) with the California Energy Commission for a nominal 1,100 MW power plant called the East Altamont Energy Center (EAEC).

The applicant's proposed site lies within a 174-acre parcel of land under the applicant's control, located in unincorporated Alameda County, approximately 1 mile west of the San Joaquin County line and 1 mile southeast of the Contra Costa County line. An additional 29 acres will be required for a temporary construction laydown area. The site is bordered by Byron Bethany Road to the north, Kelso Road to the south, and Mountain House Road to the west. If built, the plant would occupy up to 40 acres near the center of the property, with the remainder available for lease as agricultural land. **Refer to PROJECT DESCRIPTION Figures 1 and 2** for a map of the region and the project site, respectively.

PROJECT DESCRIPTION AND LINEAR FACILITIES

The generating facility would consist of three combustion turbine generators (CTGs), three heat recovery steam generators (HRSGs) with duct burners, and one condensing steam turbine generator (STG). In the combined cycle process, electricity is created both from the combustion turbines and the steam turbine. Each combustion turbine generator converts the thermal energy of natural gas to mechanical energy, which drives an electrical generator. At the same time, the thermal energy in the form of hot exhaust gas is directed to the HRSGs to produce steam, which in turn drives the steam turbine electricity generator. The design for the EAEC is such that each CTG would generate approximately 180MW at base load under average ambient conditions. The CTG exhaust gases would then be used to generate steam in the HRSGs, a process that could be augmented with duct firing. Steam from the HRSGs would then be admitted to a condensing STG, which could produce an additional 550MW under average ambient conditions. Although the AFC described the EAEC as an 1,100 MW (nominal) combined cycle power plant, the project is actually an 820 MW combined cycle power plant, with an additional 267 MW of peaking capacity provided by oversized duct burners and an oversized steam turbine generator (EAEC 2001hh).

Associated equipment would include emission control systems necessary to meet the proposed emission limits. NO_x emissions will be controlled using a combination of low NOx combustors in the CTGs and selective catalytic reduction systems in the HRSGs. A carbon monoxide catalyst would be installed in the HRSGs to limit CO emissions from the CTGs.

Additional project facilities would include:

one nominal 100,000-pound-per-hour auxiliary boiler, to provide steam for auxiliary purposes;

a 19-cell mechanical draft evaporative cooling tower, to provide cooling water for the steam turbine condenser;

a 1,000 kW emergency generator;

a 370-horsepower diesel fire pump;

a water/wastewater treatment facility;

an ammonia storage and loading area;

miscellaneous storage tanks associated with the water treatment system;

a brine crystallizer; and

a maintenance building.

The linear facilities (electric transmission facilities, natural gas pipeline, water supply pipelines, and a fiber optic line) are described below and illustrated in **Figure 2**. **PROJECT DESCRIPTION Figure 3** depicts the site layout.

TRANSMISSION LINE FACILITIES

The proposed power plant would require:

1. A new substation, in this document referred to as EAEC 230-kV switchyard (in Western's DFIS referred as Tracy East).

2. Two 0.5 mile double circuit 230-kV lines to intercept the existing Tracy-Westley 230-kV double circuit line (currently operating as single circuit).

3. Adding bays 13 & 14, with a double bus double breaker configuration, in the existing 230-kV Tracy Substation.

4. Converting existing bays 1 through 12 in the existing 230-kV Tracy Substation to a double bus double breaker.

5. Reconfiguring the existing Tracy-Westley 230-kV double circuit line into two separate circuits and terminating at bays 13 & 14 at the 230-kV Tracy Substation and at new breaker-and-a-half bays at the Westley Substation.

As proposed, new electrical equipment would be installed within the existing boundaries of the Tracy and Westley 230-kV substations.

NATURAL GAS PIPELINE

Natural gas for the facility would be delivered via approximately 1.8 miles of new 20-inch pipeline that would connect to Pacific Gas and Electric's (PG&E) existing gas pipeline. From the project site, the pipeline would run south along Mountain House

Road, turning west at Kelso Road, and then south along the eastern side of the Delta Mendota Canal to the PG&E main line.

WATER SUPPLY

The applicant plans to supply the plant's cooling and process water requirements (roughly 4,600 acre-feet per year, up to 7,000 AFY) with raw (i.e. untreated) water from the Byron Bethany Irrigation District (BBID), via a 2.1-mile pipeline. The applicant also indicated in their AFC that, as the community of Mountain House is developed and recycled water becomes available, BBID would be able to serve the facility with recycled water obtained from the Mountain House Community Service District (MHCSD) wastewater treatment plant (WWTP), offsetting raw water use.

The preferred water pipeline routes, both for the raw water and the recycled water, are shown in **PROJECT DESCRIPTION Figure 2**. For BBID raw water conveyance, the applicant's preferred route would require a pump station at Canal 45 and Bruns Road and 2.1 miles of 24-inch pipeline. The pipeline would cross one high-pressure oil pipeline and Canal 45 along the gravel road, and it would require routing under the Delta-Mendota Canal. The preferred route for the recycled water line would entail the construction of approximately 4.6 miles of 24-inch pipeline from the MHCSD WWTP to the project site. In Supplement C to the AFC, the applicant reported a refinement to the preferred route for the recycled water line. The refinement was to clarify that the pipeline would run along the south side of Byron Bethany Road rather than the north side, thus avoiding biological and cultural resources that are found along the north side of Byron Bethany Road. In addition, the preferred route was changed so that the pipeline would enter the site from the northeast corner of the 174-acre parcel rather than the northwest corner.

The EAEC AFC identified two possible sources of potable / domestic water to support the operation of the EAEC. These included the use of an onsite groundwater well or the use of surface water. The applicant later filed a supplement to the AFC that eliminated the former option. The applicant proposes to use BBID water for potable / domestic water purposes, which would necessitate the installation of a water treatment system to treat the water to drinking water standards.

FIBER OPTIC CABLE

The applicant has planned for a fiber optic cable conduit to be installed from the project switchyard across Mountain House Road to the Tracy Substation. The purpose of the cable would be to provide a communication link for relay protection and control system.

WASTEWATER TREATMENT

The project as proposed includes a zero-liquid discharge system designed to eliminate off-site disposal of wastewater. Process wastewater would be reclaimed and reused, to the extent possible. Cooling water would be cycled three to eight times (depending on water quality) in the cooling tower; wastewater would then be directed to a brine crystallizer / dryer system, where the majority of the water would be evporated, leaving a relatively dry salt cake suitable for landfill disposal (note that this is a project change – the applicant originally proposed the use of onsite evaporation ponds). Sanitary

wastewater from sinks and toilets would be discharged to an onsite septic tank and leach field.

CONSTRUCTION AND OPERATION

The project is estimated to have a capital cost of between $400 and $500 million. The applicant plans to complete construction by the summer of 2005. The project would provide for a peak of approximately 400 construction jobs over a 2-year period and up to 40 skilled positions throughout the life of the project.

The applicant proposes to operate the EAEC as a merchant power facility, selling its energy under contracts or in the spot market, through a power exchange. The EAEC would be expected to have an annual availability in the general range of 92 to 98 percent. The exact operational profile of the plant, however, would vary according to demand in the deregulated California energy market.